APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,554	04/14/2006	Jean-Bernard Fischer	0579-1112	1488

466   7590   11/09/2009
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EXAMINER
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ART UNIT	PAPER NUMBER
2437	

NOTIFICATION DATE	DELIVERY MODE
11/09/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DocketingDept@young-thompson.com

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/563,554	FISCHER ET AL.
	Examiner	Art Unit	
	SHEWAYE GELAGAY	2437	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _06 July 2009_.

2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-9,11 and 13-18_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-9, 11, 13-18_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1.   This Office Action is in response to the Applicant's amendment filed on July 6,
2009.

2.   Claims 1-9, 11, 13-16 have been amended.

3.   Claims 10 and 12 have been cancelled.

4.   New claims 17-18 have been added.

5.   Claims 1-9, 11, 13-18 are pending.

Response to Arguments

6.   Applicant's arguments filed on July 6, 2009 have been considered but are moot
in view of the new ground(s) of rejection.

Claim Objections

7.   Claim 7 is objected to under 37 CFR 1.75(c), as being of improper dependent
form for failing to further limit the subject matter of a previous claim. Applicant is
required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper
dependent form, or rewrite the claim(s) in independent form. Claim 7 recites *"wherein
said predetermined value is representative of a subset of critical instruction of said
program"* while claim 1 from which claim 7 depends recite "*said predetermined value
being an address of an anomaly processing function"*. Appropriate correction is
required.

8.   Claim 8 is objected to under 37 CFR 1.75(c), as being of improper dependent

form for failing to further limit the subject matter of a previous claim. Applicant is

required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper

dependent form, or rewrite the claim(s) in independent form. Claim 8 recites *"an*

anomaly processing step is executed if, during said unstacking step, a value other than

said predetermined value is unstacked" while claim 1 from which claim 8 depends

recites *"a step of unstacking said stack wherein if said predetermined value is*

unstacked, the anomaly processing function is executed". Appropriate correction is

required.

9.   Claim 17 is objected to because of the following informalities: The phrase

"adapted to" in the claim language ambiguity if such action would be rendered by the

anomaly processing function. Appropriate correction is required.

Claim Rejections - 35 USC § 112

10.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

11.   Regarding claim 13, the phrase "such as" renders the claim indefinite because it

is unclear whether the limitations following the phrase are part of the claimed invention.

See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 103

12.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

13.   Claims 1-2, 5-9, 11, 13-15 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Stahl US 5,274,817 in view of Szor US 2004/0158729 and in view of

Choi et al. "A New Stack Buffer Overflow Hacking Defense Technique with Memory

Address Confirmation", ICICS 2001, pages 146-159 (hereinafter Choi).

As per claim 1:

        Stahl teaches a method of making the execution of a computer program secure

(*col. 1, line 36; ensuring that the integrity of the stack during program execution*), the

method comprising:

        a processor performing: (*col. 1, lines 55-67; col. 4, lines 52-55*)

        a step of stacking a predetermined value in an instruction stack of the program;

(*col. 1, lines 55-67; col. 4, lines 52-55; storing signature word in the stack*) and

        a step of unstacking said stack, wherein if said predetermined value is

unstacked, the anomaly processing function is executed. (col. 1, lines 62-67; col. 4,

lines 57-64; col. 5, lines 8-17; *if the signature word stored on the stack matches the

entry address of the subroutine which was just execute. ..if the compared values do not

match, it is assumed that an error has occurred and control is passed to the block

where a software interrupt is executed*)

Stahl does not explicitly disclose said predetermined value being an address of
an anomaly processing function, during the normal execution of the program, a step of
removing said predetermined value from the instruction stack without executing the
anomaly processing function. Szor in analogous art, however, discloses predetermined
value being an address of an anomaly processing function. (figure 2, [0033]-[0040],
[0050]-[0056],[0058]-[0061] Therefore it would have been obvious to one ordinary skill in
the art at the time the invention was made to modify the method disclosed by Stahl with
Szor in order to prevent unauthorized access by malicious hackers or replicating
malware. ([0040]; Szor)

Both references do not explicitly disclose during the normal execution of the
program, a step of removing said predetermined value from the instruction stack without
executing the anomaly processing function. Choi in analogous art, however, discloses
during the normal execution of the program, a step of removing said predetermined
value from the instruction stack without executing the anomaly processing function.
(page 150-151; Section 3.1 and Section 3.2) Therefore it would have been obvious to
one ordinary skill in the art at the time the invention was made to modify the method
disclosed by Stahl and Szor with Choi in order to allow the function progress normally if
the predetermined value has not been changed. (page 150, Choi)

As per claim 2:

The combination of Stahl, Szor and Choi teaches all the subject matter as
discussed above. Stahl further discloses stacking and unstacking steps are respectively
associated with elements of at least one subset of instructions of said program. (*col. 4,*

lines 60-col, 5, lines 37; a branch to the subroutine is executed, the return address is
stored on the stack …when the return instruction is encountered, the return address is
retrieved from the stack)

As per claim 5:

The combination of Stahl, Szor and Choi teaches all the subject matter as
discussed above. Stahl further discloses said program is written in a programming
language including a first instruction whose execution implements said stacking step
and/or a second instruction whose execution implements said unstacking step. (col. 2,
line 61-col 4, line 21; col. 4, lines 60-col, 5, lines 37)

As per claim 6:

The combination of Stahl, Szor and Choi teaches all the subject matter as
discussed above. Stahl further discloses second instruction terminates said program or
a subroutine of said program. (col. 2, line 61-col 4, line 21; col. 4, lines 60-col, 5, lines
37)

As per claim 7:

The combination of Stahl, Szor and Choi teaches all the subject matter as
discussed above. Stahl further discloses said predetermined value is representative of a
subset of critical instructions of said program. (col. 2, line 61-col 4, line 21; col. 4, lines
60-col, 5, lines 37)

As per claim 8:

The combination of Stahl, Szor and Choi teaches all the subject matter as
discussed above. Stahl further discloses it includes an anomaly processing step

executed if, during said unstacking step, a value other than said predetermined value is

unstacked. (col. 2, line 61-col 4, line 21; col. 4, lines 60-col, 5, lines 37)

As per claim 9:

   The combination of Stahl, Szor and Choi teaches all the subject matter as

discussed above. Stahl further discloses wherein said program includes at least one call

to a subroutine, characterized in that said stacking step is effected before said call and

said predetermined value is eliminated from said stack during execution of said

subroutine. (col. 2, line 61-col 4, line 21; col. 4, lines 60-col, 5, lines 37)

   As per claim 11:

   The combination of Stahl, Szor and Choi teaches all the subject matter as

discussed above. Stahl further discloses wherein said programming includes at least

one call to a subroutine, characterized in that said stacking step is effected during

execution of said subroutine and said predetermined value is eliminated from said stack

after execution of said subroutine. (col. 2, line 61-col 4, line 21; col. 4, lines 60-col, 5,

lines 37)

   As per claim 13:

   The combination of Stahl, Szor and Choi teaches all the subject matter as

discussed above. Stahl further discloses a computer readable information recording

medium with a computer program recorded thereon, said information recording medium

totally or partially removable, in particular a CD-ROM, or a magnetic medium, such as a

hard disk or diskette wherein it includes instructions of the computer program for

implementing a method according to claim 1 when that program is loaded into and

executed by an electronic data processing system. (col. 2, line 61-col 4, line 21; col. 4,

lines 60-col, 5, lines 37)

As per claim 14:

      The combination of Stahl, Szor and Choi teaches all the subject matter as

discussed above. Stahl further discloses a computer readable information recording

medium with a computer program recorded thereon, said computer program including

instructions for executing a method according to claim 1 when that program is loaded

into and executed by an electronic data processing system. (col. 2, line 61-col 4, line 21;

col. 4, lines 60-col, 5, lines 37)

      As per claim 15:

      The combination of Stahl, Szor and Choi teaches all the subject matter as

discussed above. Stahl further discloses electronic entity that has been made secure

wherein it includes means for implementing a method according to claim 1. (col. 2, lines

15-33)

1.   Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stahl

US 5,274,817 817 in view of Szor US 2004/0158729 and in view of Choi et al. "A New

Stack Buffer Overflow Hacking Defense Technique with Memory Address Confirmation",

ICICS 2001, pages 146-159 (hereinafter Choi) and further in view McInerney et al.

(hereinafter McInerney) US 5,956,479.

      As per claim 3:

The combination of Stahl, Szor and Choi teaches all the subject matter as discussed above. None of the references explicitly disclose elements are respectively an opening bracket and a closing bracket in a system of brackets. McInerney in analogous art, however, discloses that elements are respectively an opening bracket and a closing bracket in a system of brackets. *(col. 15, lines 12-21; set-up instruction map for function execution, ... such as opening and closing brace)* Therefore it would have been obvious to one ordinary skill in the art at the time the invention was made to modify the method disclosed by Stahl, Szor and Choi with McInerney in order to set-up instruction map for a function execution to some predefined source position, such as opening and closing brace. (col. 15, lines 15-21; McInerney)

As per claim 4:

The combination of Stahl, Szor, Choi and McInerney teaches all the subject matter as discussed above. Stahl further discloses in that said unstacking step is associated with a return instruction of said program or a subroutine of said program. (col. 4, lines 60-col, 5, lines 37)

2.   Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stahl US 5,274,817 in view of Szor US 2004/0158729 and in view of Choi et al. "A New Stack Buffer Overflow Hacking Defense Technique with Memory Address Confirmation", ICICS 2001, pages 146-159 (hereinafter Choi) and further in view of Zisowski US 2003/0188174.

As per claim 16:

The combination of Stahl, Szor, Choi and McInerney teaches all the subject

matter as discussed above. None of the references explicitly disclose the electronic

entity is a smart card. Zisowski in analogous art, however, discloses that the electronic

entity is a smart card. (page 2, pp. 17 and 30) Therefore it would have been obvious to

one ordinary skill in the art at the time the invention was made to modify the method

disclosed by Stahl, Szor and Choi with Zisowski in order to provide a system for

detecting a possible malicious program that allows the identification of missing, added

or modified program modules to a computer program running on microcontrollers. (page

2, pp. 29-30; Zisowski)

3.   Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Stahl US 5,274,817 in view of Szor US 2004/0158729 and in view of Choi et al. "A New

Stack Buffer Overflow Hacking Defense Technique with Memory Address Confirmation",

ICICS 2001, pages 146-159 (hereinafter Choi) and further in view of Pritchard et al.

(hereinafter Pritchard) US 2002/0166067.

As per claims 17 and 18:

The combination of Stahl, Szor, Choi and McInerney teaches all the subject

matter as discussed above. None of the references explicitly disclose wherein the

anomaly processing function is adapted to destroy an operating system of said smart

card. Pritchard in analogous, art, however, discloses wherein the anomaly processing

function is adapted to destroy an operating system of said smart card. ([0073], [0087])

Therefore it would have been obvious to one ordinary skill in the art at the time the

invention was made to modify the method disclosed by Stahl, Szor and Choi with

Pritchard in order to provide automatically remove the anomaly by a clean version of the
operating system. ([0073]; Pritchard**)**

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in
this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP
§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37
CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE
MONTHS from the mailing date of this action. In the event a first reply is filed within
TWO MONTHS of the mailing date of this final action and the advisory action is not
mailed until after the end of the THREE-MONTH shortened statutory period, then the
shortened statutory period will expire on the date the advisory action is mailed, and any
extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of
the advisory action. In no event, however, will the statutory period for reply expire later
than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the
examiner should be directed to SHEWAYE GELAGAY whose telephone number is
(571)272-4219. The examiner can normally be reached on 8:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Emmanuel Moise can be reached on 571-272-3865. The fax phone number
for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. G./
Examiner, Art Unit 2437

/Emmanuel L. Moise/
Supervisory Patent Examiner, Art Unit 2437